

PATENT CLAIMS

1. Magnetic field sensor with a Hall element (1) that has two inner and two outer contacts (4-7) arranged along a straight line (8), **characterised in that** the contacts (4-7) are arranged on the surface of a well (2) of a first conductivity type that is embedded in a substrate (3) of a second conductivity type and that the two outer contacts (4, 7) are connected by a resistor.
2. Magnetic field sensor according to claim 1, **characterised in that** the resistor has two contacts that contact a well of the first conductivity type.
3. Magnetic field sensor according to claim 1, **characterised in that** the resistor has a contact (12) that contacts the well (2) of the Hall element (1) and is arranged next to one of the two outer contacts (4) on the side facing the edge of the well (2).
4. Magnetic field sensor according to claim 1, **characterised in that** the resistor has two contacts (12, 14) that contact the well (2) of the Hall element (1) and are each arranged next to one of the outer contacts (4, 7) on the side facing the respective edge of the well (2), whereby these two contacts (12, 14) are connected via a conductor path (13).
5. Magnetic field sensor with a Hall element (1) that has two inner and two outer contacts (4-7) arranged along a straight line (8), **characterised in that** the contacts (4-7) are arranged on the surface of a well (2) of a first conductivity type that is embedded in a substrate (3) of a second conductivity type and that at least one electrode (15, 16, 17) is present that is electrically insulated from the well (2), whereby the at least one electrode (15; 16, 17) is arranged between two contacts (4-7).
6. Magnetic field sensor with a Hall element (1) that has two inner and two outer contacts (4-7) arranged along a straight line (8), **characterised in that** the contacts (4-7) are arranged on the surface of a well (2) of a first conductivity type that is embedded in a substrate (3) of a second conductivity type and that the doping of the well (2) in the area between the two inner contacts (5, 6) is different to the doping of the well (2) in the areas between an inner contact (5, 6) and an outer contact (4, 7).
7. Magnetic field sensor with a first Hall element (1) and a second Hall element (1'), that each have two inner and two outer contacts (4-7) arranged along a straight line (8), **characterised in that** the contacts (4-7) of the first Hall element (1) are arranged on the surface of a first well (2) of a first conductivity type that is embedded in a substrate (3) of a second conductivity type, that the contacts (4'-7') of the second Hall element (1') are arranged on the surface of a second well (2) of the first conductivity type that is embedded in the substrate (3), that the straight lines (8) of the two Hall elements (1, 1') run parallel and that the contacts (4-7; 4'-7') of the two Hall elements (1, 1') are wired via conductor paths (13) in such a way that the Hall voltages of the two Hall elements (1, 1') are equidirectional and that the one of the two voltage contacts of the first Hall element (1) that with no

wiring present and with given current and vanishing magnetic field would carry the higher potential than the other voltage contact is connected to the voltage contact of the second Hall element (1') that with no wiring present and with given current and vanishing magnetic field would carry the lower potential.

8. Magnetic field sensor according to claims 1 to 4, **characterised in that** at least one electrode (15; 16, 17) electrically insulated from the well (2) is present, whereby the at least one electrode (15; 16, 17) is arranged between two contacts (4-7).

9. Magnetic field sensor according to claims 1 to 4 or 8, **characterised in that** the contacts (4-7) are arranged on the surface of a well (2) of a first conductivity type that is embedded in a substrate (3) of a second conductivity type, and that the doping of the well (2) in the area between the two inner contacts (5, 6) is different to the doping of the well (2) in the areas between an inner contact (5, 6) and an outer contact (4, 7).

10. Magnetic field sensor with a first Hall element (1) and a second Hall element (1') that each have two inner and two outer contacts (4-7) arranged along a straight line (8), **characterised in that** the contacts (4-7) of the first Hall element (1) are arranged on the surface of a first well (2) of a first conductivity type that is embedded in a substrate (3) of a second conductivity type, that the two outer contacts (4, 7) of the first Hall element (1) are connected via a resistor, that the contacts (4'-7') of the second Hall element (1') are arranged on the surface of a second well (2) of the first conductivity type that is embedded in the substrate (3), that the two outer contacts (4', 7') of the second Hall element (1) are connected via a second resistor, that the straight lines (8) of both Hall elements (1, 1') run in parallel and that the contacts (4-7; 4'-7') of the two Hall elements (1, 1') are wired via conductor paths (13) in such a way that the Hall voltages of the two Hall elements (1, 1') are equidirectional and that the one of the two voltage contacts of the first Hall element (1) that with no wiring present and with given current and vanishing magnetic field would carry a higher potential than the other voltage contact is connected to the voltage contact of the second Hall element (1') that with no wiring present and with given current and vanishing magnetic field would carry the lower potential.

11. Magnetic field sensor according to one of claims 1 to 10, **characterised in that** the two inner contacts (5, 6) are the same width and that the two outer contacts (4, 7) are the same width.